



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,552	01/16/2002	Antony van de Ven	P67558US0	1810

7590

06/17/2003

JACOBSON HOLMAN  
PROFESSIONAL LIMITED LIABILITY COMPANY  
400 SEVENTH STREET, N.W.  
WASHINGTON, DC 20004

EXAMINER

LEURIG, SHARLENE L

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/046,552

Applicant(s)

VEN, ANTONY VAN DE

Examiner

Sharlene Leurig

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1 and 8 are objected to because of the following informalities: the first line of claim 1 should read "light-emitting elements arranged in pixels"; the second line of claim 8 should read " on a side of said light-emitting". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 1, 3, 7, 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected because the phrase "substantially equate with the additional obscuring effect of adjacent light-emitting elements in an alternative portion of said display" is indefinite. It is not clear how the obscuring means are to "substantially equate with" another obscuring effect. It is not clear what the "additional obscuring effect of adjacent light-emitting elements" is. It is not clear whether the "alternative portion" of the display is located in a separate area from the obscuring means or whether it is a comparison with an alternative embodiment. For the purposes of examination the claim will be interpreted as meaning that the obscuring means is designed to compete with or mitigate the effects of the intrinsic obscuring effect that adjacent light-emitting elements

in different rows have on each other when viewed off-center, as discussed in the specification. The “alternative portion” will be interpreted as an obscuring adjacent light-emitting element in another row.

Claim 3 is rejected because the phrases “at a first spacing” and “at an alternative spacing” are indefinite. It is not clear where “spacing” refers to areas of the display screen or to the distance between adjacent light-emitting elements. It is not clear whether the “alternative spacing” is simply a different spacing than the “first spacing” because they differ in distances or if it is a comparison with an alternative embodiment. For the purposes of examination the claim will be interpreted as meaning that some rows are arranged with one spacing between adjacent light-emitting elements in the same row, in terms of distance, and that other rows are arranged with another spacing between adjacent light-emitting elements in the same row.

Claim 7 is rejected because the phrase “positioned at least partially between adjacent light-emitting element” is indefinite. It is not clear whether the phrase is meant to be “positioned at least partially between adjacent light-emitting elements”. For the purposes of examination the claim will be interpreted as meaning “positioned at least partially between adjacent light-emitting elements”.

Claim 10 is rejected because the phrase “partially equate to the obscuring effect of adjacent light emitting elements amongst a remainder of light-emitting elements” is indefinite. It is not clear how the obscuring means are to “partially equate to” the obscuring effect of adjacent light-emitting elements. For the purposes of examination the claim will be interpreted as meaning that the obscuring means is

designed to compete with or mitigate the effects of the intrinsic obscuring effect that adjacent light-emitting elements in different rows have on each other when viewed off-center, as discussed in the specification. The "remainder" of light-emitting elements will be interpreted as obscuring adjacent light-emitting elements in other rows.

Claim 11 is rejected because the phrase "partially equate to the obscuring effect of a further row of light-emitting elements of reduced spacing and differing colour distribution within said array" is indefinite. It is not clear how the obscuring means are to "partially equate to" the obscuring effect of a further row of light-emitting elements. For the purposes of examination the claim will be interpreted as meaning that the obscuring means is designed to compete with or mitigate the effects of the intrinsic obscuring effect that other rows have on each other when viewed off-center, as discussed in the specification. It is not clear if the reduced spacing is a changing spacing in a further row or if it is a comparison between the spacing of adjacent light-emitting elements in different rows. It is not clear if the differing color distribution is a comparison among different rows or a description of a single row with different colored emitters.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 3, 4, 5, 6, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of prior art.

Regarding claim 1, the applicant's admission of the prior art shows a display screen (Figure 3, element 4) having a plurality of light-emitting elements arranged in pixels in an arrangement having an axis of asymmetry (page 10, lines 1-2) wherein obscuring means (5) provided adjacent to the light-emitting elements are arranged so as to counteract the obscuring effect of adjacent light-emitting elements in adjacent rows. In the case of Figure 3, the louvers provide an obscuring effect in the vertical plane (page 10, lines 19-20).

Regarding claim 2, the applicant's admission of the prior art shows a display screen including light-emitting elements that partially protrude from a front surface of the display screen. Though the applicant's admission does not explicitly show a figure of the prior art embodiment shown in Figure 3 at a side angle to illustrate the light-emitting elements protruding from the display face, the treatment of the obscuring effects of adjacent light-emitting elements producing a blue shift in a screen with an asymmetric placement of LED's (page 10, lines 9-12) assumes that the LED's protrude from the front of the display screen as in another prior art embodiment shown in Figure 1B.

Furthermore, since the applicant describes the protrusion of the LED's from the display screen as being consistent with the "typical" prior art (page 9, line 17), it would have been obvious to provide a display screen having an asymmetric arrangement of LED's as shown in Figure 3 so that the LED's protrude from the front of the display screen, as shown in Figure 1B.

Regarding claim 3, the applicant's admission of the prior art shows a display screen including a row of light-emitting elements at a first spacing with one type of color arrangement (Figure 3, top row with red and green LED's) and a further row at an alternative spacing with a different color arrangement (bottom row with blue LED's).

Regarding claim 4, the applicant's admission of the prior art shows a display screen including louvers (Figure 3, element 5) between rows of light-emitting elements.

Regarding claim 5, the applicant's admission of the prior art shows a display screen including a protrusion (Figure 3, element 5) adjacent more than one light-emitting element.

Regarding claim 6, the applicant's admission of the prior art shows a display screen including a protrusion (Figure 1B, element 5) of reduced dimensions in regards to thickness as compared to the dimensions of the light-emitting element (8).

Regarding claim 10, the applicant's admission of the prior art shows a method of reducing color-shift in a display screen when viewed off-center, comprising the steps of providing an obscuring means (Figures 1A, 2 or 3, element 5) arranged so as to counter the obscuring effect of adjacent light-emitting elements (R, G, B) amongst a remainder of the plurality of light-emitting elements. In the specification the applicant describes the prior art shown in Figure 2 as having an intrinsic obscuring effect whereby the spacing between adjacent LED's in a single row "is kept constant to ensure LEDs within the row provide an equal degree of obscuring to the adjacent LED and prevent a particular color-shift in respect of that row" (page 5, lines 18-20). The prior art admission further shows the use of obscuring means such as louvers that "are provided intermediate of

every row such that a viewer positioned at various points on a vertical plane in front of the display screen will receive an image in which every LED is obscured by the shader to an equal degree" (page 4, line 25 to page 5, line 3). Therefore the applicant's admission of the prior art discloses a method of reducing color-shift as claimed.

Regarding claim 11, the applicant's admission of the prior art shows a method of manufacturing a display screen comprising placing a plurality of light-emitting elements in an array (Figures 1A, 2 or 3) and protruding from a front face of the display screen (Figure 1B) and providing obscuring means (5) on or adjacent light-emitting elements within a row of the array, wherein the row is defined as including both a row of LEDs and one louver, where the obscuring means are arranged so as to counter the obscuring effect of a further row of light-emitting elements of reduced spacing and differing color distribution (Figure 3). The applicant's admission of the prior art discloses obscuring means in the form of louvers that provide a vertical obscuring effect as described in relation to Figure 2 on page 4, line 25 to page 5, line 3. The applicant's admission further discloses this effect in the louvers in the prior art embodiment shown in Figure 3 (page 10, lines 14-16).

Therefore it would have been obvious to one of ordinary skill in the art to provide a display screen with all the limitations discussed above, since the applicant's admission of the prior art shows it to be well known in the art.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admission of the prior art as applied to claim 1 above, and further in view of Furst et al. (6,152,590).



The applicant's admission of the prior art discloses a display screen having all the limitations discussed above, but lacks an obscuring means including a coating or covering portion on a side of the light-emitting element.

Furst teaches LEDs having shielding tubes formed around them (Figure 3, element 29) to force the light to be emitted only at the end of the tube rather than also emitting from the sides of the LEDs. This produces a more directed cone of light (column 11, lines 18-23).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display screen disclosed in the applicant's admission of the prior art with a covering portion such as taught by Furst in order to direct the light, since it is well known in the art that more directed sources of light provide better clarity in the resulting image.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of the prior art as applied to claim 1 above, and further in view of Grossi (3,914,786).

The applicant's admission of the prior art discloses a display screen having all the limitations discussed above, but lacks an obscuring means including a coating or physical barrier within an outer lens of a light-emitting element.

Grossi teaches an LED with internal wires bent at an angle (Figure 3, element 20) so as to reflect emitted light to prevent the light from being emitted from the sides of the capsule. This prevents light from illuminating adjacent LEDs that are not supposed to be illuminated (column 3, lines 15-18).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display screen disclosed in the applicant's admission of the prior art with a physical barrier such as taught by Grossi in order to prevent the lighting of adjacent LEDs that are not mean to be illuminated, and thereby improving the clarity of the image.

### ***Allowable Subject Matter***

7. Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach or suggest an LED array having protrusions from louvers, wherein the protrusions are arranged between adjacent light-emitting elements in the same row.

### ***Conclusion***

The prior art made of record and not relied upon is considered to be pertinent to the applicant's disclosure. If the applicant wishes to review a former patent on a display screen having light-emitting elements shaded by protrusions, USPN 6,536,913 to Yajima et al., particularly Figure 7, element 4a, is considered of interest.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (703)305-

4745. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703)305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Sharlene Leurig  
June 5, 2003



NIMESHKUMAR D. PATEL  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800